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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,436	11/21/2001	Masato Yoshikawa	K-2021	1594

7590 05/12/2003

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EXAMINER
MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 05/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/989,436	Yoshikawa et al.
Examiner	**Art Unit**
Rodney McDonald	1753

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Mar 6, 2003*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above, claim(s) *14-21 and 36-40* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-13 and 22-35* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restriction

1. Applicant's election of Group I, claims 1-13 and 22-25 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is indefinite because "said particles" lack antecedent basis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1, 6-8 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Koyama et al. (U.S. Pat. 6,495,253).

Koyama et al. teach in ***Fig. 2 a touch panel***. The ***transparent conductive film sheet 6*** shown in Fig. 2 is produced by forming a hard coat film 4 on the surface of the easy adhesion film for a transparent conductive thin film 1 opposite to the surface provided with the easy adhesion layer 3, and forming a transparent conductive film 5 such as an ITO film or the like on the easy adhesion layer 3. (Column 3 lines 45-52)

The easy adhesion film for a transparent conductive thin film 1 is produced by forming the easy adhesion layer 3 on ***a transparent polymer film 2. The easy adhesion layer 3 is composed of at least an ionizing radiation curable resin binder, a thermoplastic resin binder and two or more kinds of matting agents having different average diameters.*** (Column 3 lines 53-58)

As a transparent polymer film 2, one which does not inhibits transparency, such as polyethylene terephthalate, polybutylene terephthalate, polycarbonate, polypropylene, polyethylene, acrylic resins, acetyl cellulose and vinyl chloride, can be used. A stretched film, particularly biaxially stretched film, is preferable for its improved mechanical strength and dimensional stability. ***The thickness can be appropriately selected depending on the material to be used, but, in general, is 20-500 micrometers, preferably 50-200 micrometers.*** (Column 3 lines 59-68)

The easy adhesion layer 3 formed on the transparent polymer film 2 is excellent in anti-abrasion property and adhesion property to ***the transparent conductive thin film 5 such as an ITO.*** (Column 4 lines 1-4)

The easy adhesion layer can be formed by applying a composition including, as main ingredients, an ionizing radiation curable resin binder and a thermoplastic resin binder, and two kinds of matting agents having different average diameters, and then exposing to ionizing radiation (UV or electron beam) to cross-link and cure the coating. (Column 4 lines 15-20)

The ionizing radiation curable resin may be composed of a paint, which can be cross-linked and cured by exposure to ionizing radiation (***UV*** or electron beam). As the ionizing radiation curable paint, one or more kinds of a photopolymerizable prepolymer or photopolymerizable monomer can be used. (Column 4 lines 21-25)

As the photopolymerizable prepolymer, an acrylic prepolymer, which has two or more acryloyl groups per molecule and becomes a three-dimensional network structure after cross-linking and curing is particularly preferable. Usable acrylic prepolymers include urethane acrylate, polyester acrylate, epoxy acrylate, melamine acrylate and the like. (Column 4 lines 26-33)

An amount of the ionizing radiation curable resin binder is preferably ***70-97% weight of a total amount of binders cinstituting the easy adhesion layer 3.*** (Column 4 lines 45-47)

Usable matting agents contained in the easy adhesion layer 3 include one or more kinds inorganic or organic micro-particles such as silica, alumina, titanium dioxide, calcium

carbonate, bariumsulfate, zirconiumoxide, talc, clay, aluminiumstearate, calcium stearate, zinc stearate, styrene resin, acrylic resin, silicone resin and the like. Two or more kinds of different average diameters are used in mixture. (Column 5 lines 17-25)

According to a preferable embodiment, the two or more kinds of the matting agent having different average diameters are at least one kind of relatively large matting agent having an ***Average diameter of 1-15 micrometers and relatively small matting agent having an average diameter of 5-50 nm.*** The mixing ratio of the larger matting agent having an average diameter of 1-15 .mu.m is 1-8 weight parts, preferably 2-6 weight parts based on 100 weight parts of the resin binder. The ratio of the smaller matting agent having an average diameter of 5-50 nm is 1-8 weight parts, preferably 2-6 weight parts based on 100 weight parts of the ionizing radiation curable resin. (Column 5 lines 26-37)

The thickness of the easy adhesion layer 3 is not limited so long as it is within the range enabling the aforementioned properties to be obtained, but can be appropriately adjusted ***within a range of 2-15 micrometers, preferably 3-8 micrometers.*** (Column 6 lines 4-7)

An ITO film, i.e., a tranparent conductive thin film, having a thickness of about 25 nm was formed on the easy adhesion layer 3 by sputtering. (Column 9 lines 50-53)

5. Claims 1-4, 5, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (WO 00/16251).

Sato et al. teach in Fig. 2 a touch panel. (See Fig. 2)

Each of the hard coat layers 11 and 21 has a thickness of a few micrometers and is formed from a silicon base, acrylic base, cellulose base, melamine base, or urethane base resin that is light-hardening type. This resin is applied to the entire surfaces of motherboards (in the present embodiment, the conductive-layer forming member 12 and the supporting member 22). The resin coat, that is the hard coat layer 11, applied to the entire surfaces of the motherboards is hardened by ultraviolet light. (Page 14 lines 25-29; Page 15 lines 1-5)

The conductive layers 14 and 25 ***are made of metal oxides that are transparent and conductive. As the metal oxide for forming the conductive layers 14 and 25, one of the following can be used: ITO; indium oxide (In.sub.2 O.sub.3)***; tin oxide with antimony additive (SnO.sub.2 : Sb); tin oxide with fluorine additive (SnO: F); zinc oxide with aluminum additive (ZnO: Al); zinc oxide with gallium additive (ZnO: Ga); zinc oxide with silicon additive (ZnO: Si); zinc oxide-tin oxide base metal oxide (for example, ZnSnO.sub.3); and zinc oxide-indium oxide-magnesium oxide base metal oxide (for example, Zn.sub.2 In.sub.2 O.sub.5 --MgIn.sub.2 O.sub.4) (Page 15 lines 19-29)

The undercoat layer 13 is composed of two layers 13a and 13b, while the undercoat layer24 is composed of two layers 24a and 24b. ***These respective two layers are insulators that each are made of a metal oxide with a different refractive index.*** Note that the layers 13a and 24a are respectively set closer to the conductive layers 14 and 25 than the layers 13b and 24b. The three layers, that are the conductive layer 13 and the layers 13a and 13b (or, the conductive layer 25 and the layers 24a and 24b) are set so that the refractive indexes of these layers become

high-low-high in this order when measuring from the conductive layer 14 (or, 25). By setting in this way, the light transmittance in the multilayer construction can be improved. (Page 16 lines 13-25)

The layer 13b is formed on the 11a side of the hard coat layer 11, with ***the contact layer 15 being set in between.*** Similarly, the layer 24b is formed on the 23a side of the conductive-layer forming member 23, with the contact layer 26 being set in between. ***Each of the contact layers 15 and 26 is a metal layer made of a single metal element or an alloy of two metal elements or more. It is preferable to form the contact layer using silicon (Si), titanium (Ti), tin (Sn), or zinc (Zn) as the single metal element, or using two or more from these metal elements for the alloy.*** (Page 16 lines 26-29; Page 1-6)

The thickness of the contact layers 15 and 26 is thinner than a conventional contact layer which is made of silicon oxide (SiOx, x≤2). Preferably, the thickness should be set at 10 Angstroms to 50 Angstroms in the present embodiment. If the thickness exceeds 50 Angstroms, the light transmittance is decreased, so that there is no meaning in providing the undercoat layer. Meanwhile, if the thickness is below 10 Angstroms., an adequate contact level is not obtained. (Page 17 lines 7-13)

The contact layers 15 and 26 ***can be formed according to the conventional vacuum film-thinning technique, such as the sputtering method, resistance evaporating method, and electronic-beam evaporating method.*** (Page 17 lines 14-17)

As the metal oxide used for forming the undercoat layers 13 and 24, one of the following materials can be used: silicon oxide (SiO.sub.2); titanium oxide (TiO.sub.2); tin oxide (SnO.sub.2); tin oxide-hafnium oxide base material (SnO.sub.2 --HfO.sub.2, for example); silicon oxide-tin oxide base material (SiO.sub.2 --SnO.sub.2, for example); zinc oxide-tin oxide base material (ZnO--SnO.sub.2 or ZnSnO.sub.3, for example); and tin oxide-titanium oxide base material (SnO.sub.2 --TiO.sub.2, for example). (Page 17 lines 18-25)

The undercoat layers 13 and 24 can be also formed according to the conventional vacuum film-thinning technique, such as the sputtering method, resistance evaporating method, and electronic-beam evaporating method. Suppose that the undercoat layer is to be formed from two different metal oxides and that the sputtering method is employed. In this case, the sputtering efficiency is improved in a case where an alloy of the two different metal oxides is subjected to sputtering, as compared with a case where each of the metal oxides is separately subjected to sputtering. As such, if the thicknesses of the layers formed in the former and latter cases is the same, the former case is more preferable since productivity increases. (Page 17 lines 26-29; Page 18 lines 1-8)

The conductive-layer forming members 12 and 23 can be formed from an amorphous polyolefine base resin, polycarbonate base resin, acrylic resin such as polymethyl methacrylate, or transparent sheet made of material such as polyethylene terephthalate. The amorphous polyolefine base resin will be used in the second embodiment of the present invention,

and effects produced by this resin are described later in detail. The supporting member 22 can be formed from a glass substrate, amorphous polyolefine base resin, or acrylic resin substrate made of material such as polycarbonate or polymethyl methacrylate. (Page 18 lines 26-29; Page 19 lines 1-8)

The thickness of the ITO layer can be 300 Angstroms. (See Table 1)

6. Claims 1-4, 11, 12, 22-25 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hideki (Japan 10-171599)(See Machine translation).

Hideki teach a touch panel. (See Abstract) The touch panel can comprise a first layer of silicon oxide, a seocnd layer of metal or alloy of metals of the group comprising silver gold and copper and a third layer comprising a metallic oxide such as ITO DC sputtered from a target. (Paragraph 0016 and 0037 of machine translation) The silicon oxide can be prodcued by RF sputtering. (Paragraph 0026) The metal layer can be produced by DC-sputtering. (Paragraph 0026) The touch panel that these layers are deposited on can comprise two layers 10 and 11. A transparent base 10 is utilzied to have a film sheet 11 typically of PET placed thereon. (Paragraph 0033. This paragraph was further translated to the Examiner through oral translation at the Patent and Trademark Office to make it clear to The Exmainer that a PET film was placed on the transparent substrate 10 which supports the multilayer structure) The thickness of each layer can be 1,000 Angstroms. (Paragraph 0038) The layers can exist in a structure that has three or more layers. (Paragraph 0050)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (U.S. Pat. 6,495,253).

Koyama et al. is discussed above and all is as applies above.

The differences between Koyama et al. and the present claims is the range of thicknesses and the weight percentage of the UV curing resin.

As to the range of thicknesses and the weight percentage of the UV curing resin it would have been obvious to one of ordinary skill in the art at the time the invention was made to have slected the portion of the prior art's range which is within the range of applicant's claims because

it has been held to obvious to select a value in a known range by optimization for the best results, see In re Aller, et al., 105 U.S.P.Q. 233.

9. Claims 1-5 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (WO 00/16251).

Sato et al. is discussed above and all is as applies above.

The differences between Sato et al. and the present claims is the range of thicknesses.

As to the range of thicknesses it would have been obvious to one of ordinary skill in the art at the time the invention was made to have slected the portion of the prior art's range which is within the range of applicant's claims because it has been held to obvious to select a value in a known range by optimization for the best results, see In re Aller, et al., 105 U.S.P.Q. 233.

10. Claims 1-5, 10-13, 22-26 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideki (Japan 10-171599)(See Machine translation)

Hideki et al. is discussed above and all is as applies above.

The differences between Hideki et al. and the present claims is the range of thicknesses.

As to the range of thicknesses it would have been obvious to one of ordinary skill in the art at the time the invention was made to have slected the portion of the prior art's range which is within the range of applicant's claims because it has been held to obvious to select a value in a known range by optimization for the best results, see In re Aller, et al., 105 U.S.P.Q. 233.

11. Claims 22 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable Hideki (Japan 10-171599) in view of Koyama et al. (U.S. Pat. 6,495,253)

Hideki is discussed above and all is as applies above. (See Sato et al. discussed above)

The differences between Hideki and the present claims is replacing the silcion dioxide film with Koyama et al.'s adhesion film.

Koyama et al. is discussed above and all is as applies above. Koyama et al. teach utilizing a UV curable resin with particles for the adhesion film. (See Koyama et al. discussed above)

The motivation for utilizing Koyama et al.'s adhesion film is that it allows for increasing adhesion of the conductive thin film to the polymer film while preventing glare. (Column 2 lines 2-7)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hideki by utilizing Koyama et al.'s adhesion film because it allows for increasing adhesion of the conductive film to the polymer while preventing glare.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney McDonald whose telephone number is 703-308-3807. The examiner can normally be reached on M-Th from 8 to 5:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen, can be reached on (703) 308-3324. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

RODNEY G. MCDONALD
PRIMARY EXAMINER

RM

May 7, 2003